

*These recommendations are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. They should be used as an adjunct to sound clinical decision making.*

## Guideline Specifications

### Disease/Condition(s) Targeted

Acute and sub-acute low back pain  
Chronic low back pain  
Acute and sub-acute sciatica/radiculopathy  
Chronic sciatica/radiculopathy

### Category

Prevention  
Diagnosis  
Evaluation  
Management  
Treatment

### Intended Users

Primary health care providers, for example: family physicians, osteopathic physicians, chiropractors, physical therapists, occupational therapists, nurses, pharmacists, psychologists.

### Purpose

To help Alberta clinicians make evidence-informed decisions about care of patients with non-specific low back pain.

### Objectives

- To increase the use of evidence-informed conservative approaches to the prevention, assessment, diagnosis, and treatment in primary care patients with low back pain
- To promote appropriate specialist referrals and use of diagnostic tests in patients with low back pain
- To encourage patients to engage in appropriate self-care activities

### Target Population

**Adult patients 18 years or older in primary care settings.**

**Exclusions:** pregnant women; patients under the age of 18 years; diagnosis or treatment of specific causes of low back pain such as: inpatient treatments (surgical treatments); referred pain (from abdomen, kidney, ovary, pelvis, bladder); inflammatory conditions (rheumatoid arthritis, ankylosing spondylitis); infections (neuralgia, discitis, osteomyelitis, epidural abscess); degenerative and structural changes (spondylosis, spondylolisthesis, gross scoliosis and/or kyphosis); fracture; neoplasm; metabolic bone disease (osteoporosis, osteomalacia, Paget's disease).

## Introduction

This guideline has been adapted from seven “seed” guidelines referenced as G1 through G7 published between 2003 and 2006 for prevention, acute and subacute, and chronic low back pain (Appendix E. “Seed” Guideline References).

The most common type of low back pain is non-specific, which occurs in approximately 90% of cases and has no identifiable cause. Between 49% and 90% of people in developed countries will experience at least one episode of low back pain during their lifetime.<sup>1-5</sup> Low back pain is most common among the working population, particularly men, with peak incidence occurring in people aged between 25 and 64 years.<sup>5</sup> Back pain usually resolves within 2 weeks.



Toward  
Optimized  
Practice

TOP is grateful to various sources including the Institute of Health Economics, the Alberta Heritage Foundation for Medical Research and Alberta Health Services - Calgary Health Region.

For other guidelines or companion documents, please refer to the TOP Website: [www.topalbertadoctors.org](http://www.topalbertadoctors.org)



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# Low Back Pain

However, 20% to 44% of patients will experience further episodes within a year, and over three quarters will have a reoccurrence at some point in their lives. A small minority of patients (2% to 7%) will develop chronic low back pain.<sup>5,6</sup>

A similar prevalence and clinical course for low back pain is reflected in Canadian data.<sup>7,8</sup> A recent survey<sup>9</sup> of 2400 individuals revealed that the lifetime prevalence of back pain in Alberta and Saskatchewan was 83.8%, with 61.8% of respondents reporting back pain in the last year.

The management of low back pain can be complex and costly. In Alberta and Saskatchewan, close to 40% of patients with back pain seek help from a healthcare provider.<sup>9</sup> Primary care physicians undertake the initial evaluation in 65% of low back pain cases and are often the sole provider for these patients.<sup>1,10</sup> Thus, primary care practitioners play an important role in the management of patients with low back pain.

## Interventions and Practices Considered

### Prevention of Occurrence and Recurrence of Low Back Pain

Patient education	Manipulative treatment
Physical activity	Mattresses
Shoe insoles/orthoses	Furniture - chairs
Lumbar supports/back belts	Risk factor modification

### Acute and sub-acute Low Back Pain (duration less than 12 weeks)

Diagnostic triage	Narcotic analgesics
Emergent cases	Spinal manipulation
Cases requiring further evaluation	Multidisciplinary treatment programs
Referral	Back schools
Psychosocial risk factors	Traction
Laboratory testing	Massage therapy
Reassessment of patients whose symptoms fail to resolve	Transcutaneous Electrical Nerve Stimulation (TENS)
Information and reassurance	Diagnostic imaging
Cold packs or heat	Oral and epidural steroids
Advice to stay active	Bed rest
Return to work	Acupuncture
Analgesia	Therapeutic exercise

### Chronic Low Back Pain (duration more than 12 weeks)

Diagnostic tests	Muscle relaxants
Laboratory testing	Antidepressants
Self-management programs	Opioids
Physical exercise and therapeutic exercise	Multidisciplinary treatment programs
Active rehabilitation	Prolotherapy
Massage therapy	Epidural steroid injections
Acupuncture	Behavioural therapy/progressive muscle relaxation
TENS	Referral
Non-steroidal anti-inflammatory drugs (NSAIDs)	Spinal manipulation

# Low Back Pain

## Appendices

- Appendix A: Red and Yellow Flags
- Appendix B: Medication Table
- Appendix C: Key Guideline Definitions
- Appendix D: Evidence Source
- Appendix E: “Seed” Guideline References
- Reference List

## Companion Documents

There are six companion documents to this guideline which are available on the TOP website:

### For Clinicians




- (1) Primary Care Management of Low Back Pain – An Evidence Informed Guideline Summary
- (2) Yellow Flags: Clinical Assessment of Psychosocial Yellow Flags  
What can be done to help somebody who is at risk
- (3) Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain<sup>11</sup> endorsed by the College of Physicians and Surgeons of Alberta (CPSA)
- (4) Primary Care Management of Low Back Pain - An Evidence Informed Guideline Background Document (supporting documents and process description)

### For Patients

- (1) Patient information sheets (acute low back pain and chronic low back pain)
- (2) Patient brochure *Coming Spring 2010*

## Recommendations

### Summary of criteria to determine the categorization of recommendations:

<b>Do</b> 	<ul style="list-style-type: none"> <li>• The Guideline Development Group (GDG) accepted the original recommendation, which provided a prescriptive direction to perform the action or used the term “effective” to describe it.</li> <li>• The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which supported the action.</li> </ul>
<b>Not Recommended</b> 	<ul style="list-style-type: none"> <li>• The GDG accepted the original recommendation, which provided a prescriptive direction “not” to perform the action; used the term “ineffective” to describe it; or stated that the evidence does “not support” it.</li> <li>• The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which did not support the action.</li> </ul>
<b>Do Not Know</b> 	<ul style="list-style-type: none"> <li>• The GDG accepted the original recommendation, which did not recommend for or against the action or stated that there was “no evidence”, “insufficient or conflicting evidence”, or “no good evidence” to support its use.</li> <li>• The GDG supplemented a recommendation or created a new one, based on their collective professional opinion, which was equivocal with respect to supporting the action.</li> </ul>

### Notes:

- *Statements in italics relate to harm. These statements were sourced from the recommendations or elsewhere in the “seed” guidelines*
- *It is recognized that not all recommended treatment options are available in all communities*
- *See Appendix D for Evidence Source*

# Low Back Pain

## Evidence Source

Systematic Review - **SR**  
 Randomized Control Trial - **RCT**  
 Non-Randomized Trial - **NRT**  
 Guideline - **G**  
 Expert Opinion - **EO**

## Prevention

**Summary of Recommendations:** Prevention of Occurrence and Recurrence of Low Back Pain

Recommendation	Evidence Source
<p><b>✓ Patient Education</b></p> <p>Practitioners should provide information or patient education material on back pain prevention and care of the healthy back that emphasizes patient responsibility and workplace ergonomics. (See the companion document -Patient brochure.)</p> <p>The evidence is unclear on what quantity, intensity, or media is optimal for delivering this information. (See the companion documents - patient information sheets [acute low back pain and chronic low back pain] and patient brochure which are available on the TOP website.)</p> <p>Practitioners should emphasize that acute low back pain is nearly always benign and generally resolves within 1 to 6 weeks.</p> <p><i>Patient information and educational material based on a biomedical or biomechanical model (anatomical and “traditional” posture information) can convey negative messages about back pain and is not recommended.</i></p>	SR (G2 & G5)
<p><b>✓ Physical Activity</b></p> <p>Physical activity is recommended. There is insufficient evidence to recommend for or against any specific kind of exercise, or the frequency/intensity of training.</p>	SR (G5)
<p><b>✗ Shoe Insoles / Orthoses</b></p> <p>The use of shoe insoles or orthoses is not recommended for prevention of back problems.</p>	RCT (G5)
<p><b>? Lumbar Support / Back Belts</b></p> <p>Neither lumbar supports nor back belts appear to be effective in reducing the incidence of low back pain.</p>	RCT (G3)
<p><b>? Manipulative Treatment</b></p> <p>No evidence was found to support recommending regular manipulative treatment for the prevention of low back pain.</p>	RCT (G5)

# Low Back Pain

## Prevention

Recommendation	Evidence Source
<p><b>? Mattresses</b></p> <p>There is insufficient evidence to recommend for or against any specific mattresses for prevention of low back pain.</p>	RCT (G5)
<p><b>? Furniture - Chairs</b></p> <p>There is insufficient evidence to recommend for or against any specific chairs for prevention of low back pain.</p>	NRT (G5)
<p><b>? Risk Factor Modification</b></p> <p>There is no good evidence for or against risk factor modification (e.g., smoking cessation, reduced alcohol consumption, weight reduction) for the prevention of low back pain.</p>	SR (G3)

## Acute & Subacute

**Summary of Recommendations:** Acute and Sub-acute Low Back Pain

Recommendation	Evidence Source
<p><b>✓ Diagnostic Triage</b></p> <p>The first qualified practitioner with the ability to do a full assessment (i.e., history-taking, physical and neurological examination, and psychosocial risk factor assessment) should assess the patient and undertake diagnostic triage. (See Appendix A for summary of red and yellow flags and companion documents, “Clinical Assessment for Psychosocial Yellow Flags” and “What can be done to help somebody who is at risk?”, available on the TOP website.)</p> <p>If serious spinal pathology is excluded, manage as non-specific low back pain as per the reassessment and treatment recommendations below.</p>	SR (G2 & G4)
<p><b>✓ Emergent Cases</b></p> <p>Patients with red flags (See Appendix A for red flag definitions) indicating a high likelihood of serious underlying pathology should be referred for immediate evaluation and treatment to an appropriate resource depending on what is available in your region (e.g., emergency room, relevant specialist.)</p>	EO (G2)
<p><b>✓ Cases Requiring Further Evaluation</b></p> <p>Schedule an urgent appointment with a physician if any of the red flags are present. (See Appendix A for red flag definitions.)</p>	EO (G2)

# Low Back Pain

## Acute & Subacute

Recommendation	Evidence Source
<p><b>✓ Referral</b></p> <p>Patients with disabling back or leg pain, or significant limitation of function including job related activities should be referred within 2-6 weeks to a trained spinal care specialist such as a physical therapist, chiropractor, osteopathic physician or physician who specializes in musculoskeletal medicine.</p> <p>Consult or refer to a spinal surgeon if the patient has neuromotor deficits that persist after 4 to 6 weeks of conservative treatment or sciatica for longer than 6 weeks with positive straight leg raise.</p>	<p>EO (G2)</p>
<p><b>✓ Psychosocial Risk Factors</b></p> <p>Primary care evaluation should include assessment for psychosocial risk factors ('yellow flags') and a detailed review if there is no improvement. (See Appendix A for summary of yellow flags and companion documents, "Clinical Assessment for Psychosocial Yellow Flags" and "What can be done to help somebody who is at risk?", available on the TOP website.) Psychosocial risk factors (yellow flags) include fear, financial problems, anger, depression, job dissatisfaction, family problems, or stress.</p>	<p>SR (G2 &amp; G4)</p>
<p><b>✓ Laboratory Testing</b></p> <p>If cancer or infection is suspected, order the appropriate blood tests. In the absence of red flags, no laboratory tests are recommended.</p>	<p>EO (G2)</p>
<p><b>✓ Reassessment of Patients Whose Symptoms Fail to Resolve</b></p> <p>Reassess patients whose symptoms are not resolving. Follow-up in one week if pain is severe and has not subsided. Follow-up in three weeks if moderate pain is not improving. Follow-up in 6 weeks if not substantially recovered. If serious pathology (red flag) is identified, consider further appropriate management. Identify psychosocial risk factors (yellow flags) and address appropriately. (See Appendix A for definitions of red and yellow flags and companion documents "Clinical Assessment for Psychosocial Yellow Flags" and "What can be done to help somebody who is at risk?" for chronicity and increased disability, available on the TOP website.)</p>	<p>G (G2 &amp; G4)</p>
<p><b>✓ Information and Reassurance</b></p> <p>Educate the patient and describe the benign long-term course of low back pain. Provide education materials that are consistent with your verbal advice, to reduce fear and anxiety and emphasize active self-management. (See the companion document - Patient Information Sheet.)</p>	<p>NRT (G2 &amp; G4)</p>

# Low Back Pain

## Acute & Subacute

Recommendation	Evidence Source
<p><b>✓ Cold Packs or Heat</b></p> <p>In the first 72 hours recommend cold packs (ice), after that, alternate cold and heat as per patient’s preference.</p> <p><i>Heat or cold should not be applied directly to the skin, and not for longer than 15 to 20 minutes. Use with care if lack of protective sensation.</i></p>	<p>EO (G2)</p>
<p><b>✓ Advice to Stay Active</b></p> <p>Patients should be advised to stay active and continue their usual activity, including work, within the limits permitted by the pain. Physical exercise is recommended.</p> <p><i>Patients should limit/pace any activity or exercise that causes spread of symptoms (peripheralization). Self-treating with an exercise program not specifically designed for the patient may aggravate symptoms.</i></p>	<p>SR (G2 &amp; G4)</p>
<p><b>✓ Return to Work</b></p> <p>Encourage early return to work.</p> <p>Refer workers with low back pain beyond 6 weeks to a comprehensive return-to-work rehabilitation program. Effective programs are typically multidisciplinary and involve case management, education about keeping active, psychological or behavioral treatment and participation in an exercise program.</p> <p><i>Working despite some residual discomfort poses no threat and will not harm patients.</i></p>	<p>SR (G2)</p>
<p><b>✓ Analgesia</b></p> <p>Prescribe medication, if necessary, for pain relief preferably to be taken at regular intervals. First choice acetaminophen; second choice NSAIDs. Only consider adding a short course of muscle relaxant (benzodiazepines, cyclobenzaprine, or antispasticity drugs) on its own, or added to NSAIDs, if acetaminophen or NSAIDs have failed to reduce pain.</p> <p><i>Serious adverse effects of NSAIDs include gastrointestinal complications (e.g., bleeding, perforation and increased blood pressure). Drowsiness, dizziness and dependency are common adverse effects of muscle relaxants. (See Medication Table in Appendix B.)</i></p>	<p>SR (G4 &amp; G7)</p>

# Low Back Pain

## Acute & Subacute

Recommendation	Evidence Source
<p><b>✓ Narcotic Analgesics</b></p> <p>There is evidence that the effect of opioid or compound analgesics is similar to NSAID treatment of acute low back pain.</p> <p>Oral opioids may be necessary to relieve severe musculoskeletal pain. It is preferable to administer a short-acting agent at regular intervals, rather than on a pain-contingent basis. Ongoing need for opioid analgesia is an indication for reassessment.</p> <p><i>In general, opioids and compound analgesics have a substantially increased risk of side effects compared with acetaminophen alone. (See Medication Table in Appendix B.)</i></p>	<p>SR (G7)</p>
<p><b>✓ Spinal Manipulation</b></p> <p>Patients who are not improving may benefit from referral for spinal manipulation provided by a trained spinal care specialist such as a physical therapist, chiropractor, osteopathic physician or physician who specializes in Musculoskeletal (MSK) medicine.</p> <p><i>Risk of serious complication after spinal manipulation is low (estimated risk: cauda equina syndrome less than 1 in one million). Current guidelines contraindicate manipulation in people with severe or progressive neurological deficit.</i></p>	<p>SR (G4)</p>
<p><b>✓ Multidisciplinary Treatment Programs</b></p> <p>Encourage early return to work. Refer patients who have difficulty returning to work to a multidisciplinary treatment program.</p>	<p>SR (G4)</p>
<p><b>✗ Back Schools</b></p> <p>Back schools are not recommended for treatment of acute low back pain.</p> <p>Back schools are programs of variable duration and intensity that include education about the anatomy and function of the back as well as training on specific therapeutic exercises.</p>	<p>SR (G4)</p>
<p><b>✗ Traction</b></p> <p>Do not use traction. Traction has been associated with significant adverse events.</p> <p><i>Passive treatment modalities such as traction should be avoided as mono-therapy and not routinely be used because they may increase the risk of illness behaviour and chronicity.</i></p> <p><i>The following adverse effects from traction were reported: reduced muscle tone, bone demineralization, and thrombophlebitis.</i></p>	<p>SR (G4 &amp; G7)</p>



# Low Back Pain

## Acute & Subacute

Recommendation	Evidence Source
<p><b>✘ Massage Therapy</b></p> <p>Massage therapy is not recommended as a treatment for acute low back pain.</p>	SR (G4)
<p><b>✘ Transcutaneous Electrical Nerve Stimulation (TENS)</b></p> <p>TENS is not recommended for the treatment of acute non-specific low back pain.</p>	SR (G4)
<p><b>✘ Diagnostic Imaging</b></p> <p>For non-specific acute low back pain (no red flags), diagnostic imaging tests, including X-ray, CT and MRI, are not indicated.</p> <p><i>In the absence of red flags, routine use of X-rays is not justified due to the risk of high doses of radiation and lack of specificity.</i></p>	SR (G4)
<p><b>✘ Oral and Epidural Steroids</b></p> <p><b>Oral Steroids</b></p> <p>Do not use oral steroids for acute non-specific low back pain</p>	EO (G2)
<p><b>Epidural Steroids</b></p> <p>Do not use epidural steroid injections for acute non-specific low back pain without radiculopathy. It is reasonable to use epidural steroid injections for patients with radicular pain for greater than 6 weeks who have not responded to first line treatments.</p> <p><i>Adverse effects are infrequent and include headache, fever, subdural penetration and more rarely epidural abscess and ventilatory depression.</i></p>	SR (G4)
<p><b>✘ Bed Rest</b></p> <p>Do not prescribe bed rest as a treatment.</p> <p>If the patient must rest, bed rest should be limited to no more than 2 days. Prolonged bed rest for more than 4 days is not recommended for acute low back problems. Bed rest for longer than two days increases the amount of sick leave compared to early resumption of normal activity in acute low back pain. <i>There is evidence that prolonged bed rest is harmful.</i></p>	SR (G2, G4 & G7)
<p><b>? Acupuncture</b></p> <p>The evidence does not allow firm conclusions about the effectiveness of acupuncture.</p>	SR (G7)

# Low Back Pain

Recommendation	Evidence Source
<p><b>? Therapeutic Exercise</b></p> <p>There is insufficient evidence to recommend for or against any specific kind of exercise, or the frequency/intensity of training. Clinical experience suggests that supervised or monitored therapeutic exercise may be useful following an individualized assessment by a spine care specialist. For patients whose pain is exacerbated by physical activity and exercise, refer to a physical therapist, chiropractor, osteopathic physician, or physician who specializes in MSK medicine for therapeutic exercise recommendations.</p> <p><i>Patients should discontinue any activity or exercise that causes spread of symptoms (peripheralization). Self-treating with an exercise program not specifically designed for the patient may aggravate symptoms.</i></p>	<p>SR (G2 &amp; G4)</p>

## Chronic

### Summary of Recommendations: Chronic Low Back Pain

Recommendation	Evidence Source
<p><b>✓ Diagnostic Tests</b></p> <p>In chronic low back pain, X-rays of the lumbar spine are very poor indicators of serious pathology. Hence, in the absence of clinical red flags spinal X-rays are not encouraged. More specific and appropriate diagnostic imaging should be performed on the basis of the pathology being sought (e.g. DEXA scan for bone density, bone scan for tumors and inflammatory diseases). However, lumbar spine X-rays may be required prior to more sophisticated diagnostic imaging, for example prior to performing a CT or MRI scan. In this case, the views should be limited to anterior-posterior (AP) and lateral (LAT) without requesting oblique views.</p> <p><i>Oblique view X-rays are not recommended; they add only minimal information in a small percentage of cases, and more than double the patient's exposure to radiation.</i></p>	<p>NRT (G2)</p>
<p><b>✓ Laboratory Testing</b></p> <p>If cancer or infection is suspected, order the appropriate blood tests. In the absence of red flags, no laboratory tests are recommended.</p>	<p>EO (G2)</p>

# Low Back Pain

## Chronic

Recommendation	Evidence Source
<p><b>✓ Self-management Programs</b></p> <p>Where available, refer to a structured community-based self-management group program for patients who are interested in learning pain coping skills. These programs are offered through chronic disease management and chronic pain programs. Self-management programs focus on teaching core skills such as self monitoring of symptoms to determine likely causal factors in pain exacerbations or ameliorations, activity pacing, relaxation techniques, communication skills, and modification of negative ‘self talk’ or catastrophizing. These programs use goal setting and ‘homework assignments’ to encourage participants’ self confidence in their ability to successfully manage their pain and increase their day-to-day functioning. Most community-based programs also include exercise and activity programming that are also recommended.</p> <p>Where structured group programs are not available, refer to a trained professional for individual self-management counselling.</p>	<p>G (G6)</p>
<p><b>✓ Physical Exercise and Therapeutic Exercise</b></p> <p>Patients should be encouraged to initiate gentle exercise and gradually increase their exercise level within their pain tolerance.</p> <p>Sophisticated equipment is not necessary. Low cost alternatives include unsupervised walking and group exercise programs such as those offered through chronic disease management programs. The outcome for group exercise is likely better in terms of peer support, giving people improved confidence and empowering patients to manage with less medical intervention.</p> <p>If exercise persistently exacerbates their pain, patients should be further assessed by a knowledgeable physician to determine if further investigation, medications, other interventions, and/or consultation are required.</p> <p>The exercise program should also be assessed by a knowledgeable physical therapist or qualified exercise specialist if the exercises exacerbate the patient’s pain.</p> <p><i>Some studies reported mild negative reactions to the exercise program such as increased low back pain and muscle soreness in some patients.</i></p>	<p>SR (G1 &amp; G6)</p>

# Low Back Pain

## Chronic

Recommendation	Evidence Source
<p>✓ <b>Active Rehabilitation</b></p> <p>Active rehabilitation program includes:</p> <ul style="list-style-type: none"> <li>• Education about back pain principles</li> <li>• Self-management programming (see Self-management Programs recommendation)</li> <li>• Gradual resumption of normal activities (including work and physical exercise) as tolerated</li> <li>• Therapeutic exercise - there is strong evidence that therapeutic exercise is effective for chronic low back pain. There is no conclusive evidence as to the type of therapeutic exercise that is best. A client-specific, graded, active, therapeutic exercise program is recommended</li> </ul>	<p>SR (G2)</p>
<p>✓ <b>Massage Therapy</b></p> <p>Massage therapy is recommended as an adjunct to an overall active treatment program.</p>	<p>SR (G6)</p>
<p>✓ <b>Acupuncture</b></p> <p>Acupuncture is recommended as a stand-alone therapy or as an adjunct to an overall active treatment program.</p> <p><i>No serious adverse events were reported in the trials. The incidence of minor adverse events was 5% in the acupuncture group.</i></p>	<p>SR (G6)</p>
<p>✓ <b>TENS</b></p> <p>The research evidence does not support the use of TENS as a sole treatment for chronic low back pain. However, clinical experience suggests that TENS may be useful in select patients for pain control to avoid or reduce the need for medications. A short trial (2 to 3 treatments) using different stimulation parameters should be sufficient to determine if the patient will respond to this modality.</p> <p><i>Skin irritation is a common adverse event.</i></p>	<p>SR (G6)</p>
<p>✓ <b>Acetaminophen and Non-steroidal Anti-inflammatory Drugs (NSAIDs)</b></p> <p>Acetaminophen and NSAIDs are recommended. No one NSAID is more effective than another.</p> <p><i>NSAIDs are associated with mild to moderately severe side effects such as: abdominal pain, diarrhea, edema, dry mouth, rash, dizziness, headache, tiredness. There is no clear difference between different types of NSAIDs. (See Medication Table in Appendix B.)</i></p>	<p>SR (G6)</p>

# Low Back Pain

## Chronic

Recommendation	Evidence Source
<p><b>✓ Muscle Relaxants</b></p> <p>Some muscle relaxants (e.g., cyclobenzaprine) may be appropriate in selected patients for symptomatic relief of pain and muscle spasm.</p> <p><i>Caution must be exercised with managing side effects, particularly drowsiness, and also with patient selection, given the abuse potential for this class of drugs. (See Medication Table in Appendix B.)</i></p>	<p>SR (G6)</p>
<p><b>✓ Antidepressants</b></p> <p>Tricyclic antidepressants have a small to moderate effect for chronic back pain, at much lower doses than might be used for depression.</p> <p><i>Possible side-effects include drowsiness and anticholinergic effects. (See Medication Table in Appendix B.)</i></p>	<p>SR (G6)</p>
<p><b>✓ Opioids</b></p> <p>Long-term use of weak opioids, like codeine, should only follow an unsuccessful trial of non-opioid analgesics. In severe chronic pain, opioids are worth careful consideration. Long acting opioids can establish a steady state blood and tissue level that may minimize the patient’s experience of increased pain from medication withdrawal experienced with short acting opioids.</p> <p>Careful attention to incremental changes in pain intensity, function, and side effects is required to achieve optimal benefit. Because little is known about the long-term effects of opioid therapy, it should be monitored carefully.</p> <p><i>Opioid side-effects (including headache, nausea, somnolence, constipation, dry mouth, and dizziness) should be high in the differential diagnosis of new complaints.</i></p> <p>A history of addiction is a relative contraindication. Consultation with an addictions specialist may be helpful in these cases.</p> <p>Consult the Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain endorsed by the CPSA. (Also see Medication Table in Appendix B.)</p>	<p>SR (G6)</p>
<p><b>✓ Multidisciplinary Treatment Program</b></p> <p>Referral to a multidisciplinary chronic pain program is appropriate for patients who are significantly affected by chronic pain and who have failed to improve with adequate trials of first line treatment. Get to know the multidisciplinary chronic pain program in your referral area and use it for selected cases of chronic low back pain.</p>	<p>SR (G6)</p>

## Chronic

Recommendation	Evidence Source
<p><b>✓ Prolotherapy</b></p> <p>Prolotherapy is only appropriate in carefully selected and monitored patients who are participating in an appropriate program of exercise and/or manipulation/mobilization.</p> <p><i>The most commonly reported adverse events were temporary increases in back pain and stiffness following injections. Some patients had severe headaches suggestive of lumbar puncture, but no serious or permanent adverse events were reported.</i></p>	<p>SR (G6)</p>
<p><b>✓ Epidural Steroid Injections</b></p> <p>For patients with leg pain, epidural steroid injections can be effective in providing short-term pain relief.</p> <p><i>Transient minor complications include: headache, nausea, pruritis, increased pain of sciatic distribution, and puncture of the dura. (See Medication Table in Appendix B.)</i></p>	<p>SR (G6)</p>
<p><b>✓ Behavioural Therapy / Progressive Muscle Relaxation</b></p> <p>Where group programs are not available, consider referral for individual cognitive-behavioural treatment provided by psychologist or other qualified provider.</p>	<p>SR (G6)</p>
<p><b>✓ Referral</b></p> <p>Refer patients with severe persistent disability who have not responded to an exercise-based active rehabilitation program to interdisciplinary rehabilitation, a multidisciplinary chronic pain program or a physiotherapy clinic with consultation services.</p>	<p>G (G2 &amp; G6)</p>
<p><b>? Spinal Manipulation</b></p> <p>There is insufficient evidence to recommend for or against spinal manipulative therapy.</p>	<p>SR (G6)</p>

## Red Flags

(adapted from G2, G4)

### Definitions

**EMERGENCY** - referral within hours

**URGENT** - referral within 24 - 48 hours

**SOON** - referral within weeks

*While patient is waiting to be seen by specialist: general advice is analgesia, rest and activity avoidance. Advise patient that tests are needed to clarify the diagnosis but that the results may be inconclusive.*

- Cauda Equina Syndrome - (sudden onset major bladder or bowel symptoms, perineal numbness) - **EMERGENCY** referral to ER
- Severe unremitting (non-mechanical) worsening of pain (at night and pain when laying down), consider infection/tumor – **URGENT** referral to ER for pain control – will need prompt investigation
- Significant trauma – consider fractures – check for instability and refer **URGENTLY** to spinal surgery
- Weight loss, fever, history of cancer/HIV – consider infection/tumor – refer **URGENTLY** for MRI Scan and to spinal surgery
- Use of IV drugs or steroids – consider infection/compression fracture – **URGENT** referral to spinal surgery
- Patient over 50 (if first ever episode of serious back pain) – refer **SOON** for prompt investigation/spinal surgery
- Widespread neurological signs – consider infection/tumor/neurological disease – refer **SOON** to neurology/spinal surgery/investigate further

## Yellow Flags<sup>12</sup>

Yellow Flags indicate psychosocial barriers to recovery that may increase the risk of long-term disability and work loss. Identifying any Yellow Flags may help when improvement is delayed. There is more about “Clinical Assessment of Psychosocial Yellow Flags” and “What can be done to help somebody who is at risk?” in the companion documents to this guideline, which are available on the TOP website”. Yellow Flags include:

Yellow flag	Intervention
Belief that pain and activity are harmful	Educate and consider referral to active rehab
‘Sickness behaviours’ (like extended rest)	Educate and consider pain clinic referral
Low or negative moods, social withdrawal	Assess for psychopathology and treat
Treatment beliefs do not fit best practice	Educate
Problems with claim and compensation	Connect with stakeholders and case manage
History of back pain, time-off, other claims	Follow-up regularly refer if recovering slowly
Problems at work, poor job satisfaction	Engage case management through disability carrier
Heavy work, unsociable hours (shift work)	Follow-up regularly refer if recovering slowly
Overprotective family or lack of support	Educate patient and family

\* NOTE: Tramadol and Pregabalin are NOT currently covered by Alberta Blue Cross.

Pain Type	Medication	Dosage Range	Contra-indications/Precautions	Side Effects	Ongoing monitoring
Acute low back pain or flare-up of chronic low back/spinal pain <sup>14</sup>	<b>1<sup>st</sup> line</b> - Acetaminophen	Up to 1000 mg QID (max of 4000 mg / day)	These are <u>time limited</u> strategies typically several days to a week and rarely up to a month  Monitor judiciously	Negligible	See Acetaminophen below
	<b>2<sup>nd</sup> line</b> – NSAIDs Ibuprofen Diclofenac	Up to 800 mg TID (max of 800 mg QID)  Up to 50 mg TID		See NSAIDs below	See NSAIDs below
Chronic low back/spinal pain <sup>14</sup>	<b>Add:</b> Cyclobenzaprine for prominent muscle spasm  If taking controlled-release (CR) opioids add a short-acting opioid or increase CR opioid by 20 - 25%	10 to 30 mg per day; Greatest benefit seen within one week; therapy up to 2 weeks may be justified  See opioids below	Monitor judiciously	Sedation, dry mouth  See opioids below	Related to the TCAs but without robust evidence to support long term use  See opioids below
	<b>1<sup>st</sup> line</b> Acetaminophen	Up to 1000 mg QID (max of 4000 mg / day)	Liver disease. Concomitant long term use with NSAIDs may inc. risk of ulcers (suggested max 3000 mg/day)	Negligible	Primarily liver toxicity with long term, high dose consumption. Increased risk of high BP associated with long term use
	<b>2<sup>nd</sup> line</b> NSAIDs Ibuprofen Diclofenac	Up to 800 mg TID (max of 800 mg QID)  Up to 50 mg TID	Elevated risk of GI complications; coagulation defects	Primarily GI, possible fluid retention or CNS effects such as dizziness or fatigue at higher doses	Patients may need gastric protection with a PPI. Monitor for CV risk factors and renal function if long term use
	<b>3<sup>rd</sup> line</b> Weak Opioids Codeine CR Codeine	30 to 60 mg every 3 to 4 hours CR codeine - 50 to 200 mg Q8h, may also be given Q12h	10% of patients do not respond to codeine	Constipation, nausea, CNS side effects	Monitor constipation
	<b>4<sup>th</sup> line</b> - Tramadol*	Slow titration; max of 400 mg/day, short acting form is only in combination with acetaminophen <u>Note</u> – Monitor for total combined daily acetaminophen dose	Slow titration then convert to a CR product. Possible loss of analgesia when combined with high dose opioid. Caution if adding to TCAs or SNRIs	Dizziness, drowsiness, asthenia, gastrointestinal complaints	Hepatic and/or renal dysfunction or pre-existing seizure risk
	<b>5<sup>th</sup> line</b> Strong Opioids (CR) Morphine sulfate Hydromorphone HCl Oxycodone HCl Fentanyl patch	15 to 100 mg BID 3 to 24 mg BID 10 to 40 mg BID-TID 25 to 50 µg Q3days	Assess addiction potential Use an opioid agreement Observe and assess for a dose-response relationship	Anticipate constipation and nausea; treat accordingly CNS side effects. Tolerance occurs	Pain, function, behaviour Monitor for end-of-dose failure; some patients may require Q8h dosing
	<b>1<sup>st</sup> or 2<sup>nd</sup> line</b> Tricyclics Amitriptyline Nortriptyline fewer adverse effects	10 to 100 mg HS	Start low & go slow; TCAs have positive effects on sleep architecture	Drowsiness, anti-cholinergic effects	Precautions in patients with pre-existing cardiac abnormalities and glaucoma
	<b>1<sup>st</sup> or 2<sup>nd</sup> line</b> Anticonvulsants (Gabapentin or Pregabalin*)	Gabapentin: 100 mg HS up to a suggested maximum of 1200 mg TID. Higher doses have been used Pregabalin: 75 to 300 mg BID; may need to start @ 25 mg for elderly or sensitive patients  See opioids or tramadol as above	Significant renal impairment requires dose adjustment Slower titration required for pregabalin	Sedation, dizziness and other CNS side effects	Occasional renal function tests
	<b>3<sup>rd</sup> line</b> - Add opioids or tramadol	See opioids or tramadol as above	See opioids or tramadol as above	See opioids or tramadol as above	See opioids or tramadol as above
	Sleep disturbance accompanying chronic pain <sup>14,17</sup>	Amitriptyline  Trazodone  Mirtazapine	10 to 100 mg take 2+ hours before bed time  25 to 100 mg HS  15 to 45 mg HS	Dosing should be individualized and concurrent mood disturbances treated	Drowsiness, anti-cholinergic effects  Drowsiness, dizziness  Drowsiness, inc. appetite, dizziness

OPIOIDS

Consider Tricyclics also 3<sup>rd</sup> line – see



## Definitions

(adapted from  
18-20, G5)

**Acute and sub-acute low back pain:** Duration less than 12 weeks

**Chronic low back pain\*:** Duration more than 12 weeks

**Non-specific low back pain:** Pain, muscle tension, or stiffness that occurs between the rib cage and the inferior gluteal folds, with or without leg pain (sciatica), and has no identifiable cause

**Prevention of occurrence of low back pain:** Reduction of the incidence (first-time onset) of low back pain or the risk of new cases appearing, i.e. primary prevention

**Prevention of recurrence of low back pain:** Reduction of the occurrence of a new episode of low back pain after a symptom-free period in patients who have previously experienced low back pain, i.e., secondary prevention

**Spinal care specialist:** A physical therapist, chiropractor, osteopathic physician or physician who specializes in musculoskeletal medicine

*\*Two seed guidelines, G2 and the G1 defined chronic pain as  $\geq 6$  weeks' duration.*

The Evidence Source provides information on the “seed” guideline(s) that were used to develop the Alberta guideline recommendations. The Evidence Source also provides information on the design of the study that was referenced in the “seed” guideline in support of the recommendation.

The following evidence sources were considered:

- Systematic review (SR): as cited by the “seed” guideline(s) or identified from supplementary literature search from January 2000 to August 2007 required by the Ambassador Guideline Development Group (GDG)
- Randomized controlled trial (RCT): as cited by the “seed” guideline
- Non-randomized trial (NRT): in the form of non-systematic/narrative review, non-randomized comparative study, and case series study, as cited by the “seed” guideline
- Guideline (G): as cited by the “seed” guideline

Expert opinion (EO): after examining the individual studies cited by the “seed” guideline(s) or additional SRs on low back pain as identified by supplementary literature search from January 2000 to August 2007, the original recommendation was rejected and a new one was drafted based on the collective expert opinion of the Ambassador GDG. When no evidence was provided by the “seed” guideline in support of the recommendation, the supporting evidence for that recommendation was labeled as expert opinion (by the authors of the “seed” guideline).

When the evidence cited by the “seed” guideline(s) was from SR(s) and studies of other design (i.e. RCT, NRT, or guideline) only SR is listed as the source. When no SR was referenced in the “seed” guideline, the evidence source was indicated in the following order: RCT, or NRT, or guideline, or expert opinion. The same classification for the evidence source was applied when multiple “seed” guidelines were used to inform one recommendation.

Each recommendation in the Alberta guideline came from one or more “seed” guideline(s) accepted, supplemented, or changed and was based on additional evidence, and/or consensus of expert opinion.

*The guidelines are not presented in any specific order. G1, G2, etc., are randomly assigned and for the purpose of organization only*

<b>G1 (UK)</b>	<p>Mercer C et al. Clinical guidelines for the physiotherapy management of persistent Low Back Pain (LBP), part 1: exercise. Chartered Society of Physiotherapy, London. 2006.</p> <p>Available for purchase.</p>
<b>G2 (USA)</b>	<p>Institute for Clinical Systems Improvement (ICSI). Adult low back pain. Bloomington (MN). 2006 September.</p> <p>Last accessed online May 7, 2008.</p>
<b>G3 (USA)</b>	<p>U.S. Preventive Services Task Force. Primary Care Interventions to Prevent Low Back Pain: Brief Evidence Update. February 2004. Agency for Healthcare Research and Quality, Rockville, MD.</p> <p>Last accessed online May 7, 2008.</p>
<b>G4 (Europe)</b>	<p>van Tulder M et al. on behalf of the COST B13 Working Group on Guidelines for the Management of Acute Low Back Pain in Primary Care. European Guidelines for the Management of Acute Nonspecific Low Back Pain in Primary Care. 2004.</p> <p>Last accessed online May 7, 2008.</p>
<b>G5 (Europe)</b>	<p>Burton AK et al. on behalf of the COST B13 Working Group on Guidelines for Prevention in Low Back Pain. European Guidelines for Prevention in Low Back Pain. November 2004.</p> <p>Last accessed online May 7, 2008.</p>
<b>G6 (Canada)</b>	<p>Calgary Health Region. Chronic Pain Management. Guidelines for Primary Care Practice in the Calgary Health Region. October 2005.</p> <p>Regional Pain Program. Low Back Pain. Evidence-based Clinical Practice Guidelines for Primary Care Practice in the Calgary Health Region. Chronic Pain Services in the Community: Supporting Primary Care. September 19, 2006.</p> <p>Last accessed online May 7, 2008.</p>
<b>G7 (Australia)</b>	<p>Australian Acute Musculoskeletal Pain Group. Evidence-based Management of Acute Musculoskeletal Pain. Acute Low Back Pain. Chapters 4 &amp; 9, pg 25-62 and 183-188. 2003.</p> <p>Last accessed online May 7, 2008.</p>

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# Low Back Pain



Toward  
Optimized  
Practice

## **Toward Optimized Practice (TOP) Program**

Arising out of the 2003 Master Agreement, TOP succeeds the former Alberta Clinical Practice Guidelines program, and maintains and distributes Alberta CPGs. TOP is a health quality improvement initiative that fits within the broader health system focus on quality and complements other strategies such as Primary Care Initiative and the Physician Office System Program.

The TOP program supports physician practices, and the teams they work with, by fostering the use of evidence-based best practices and quality initiatives in medical care in Alberta. The program offers a variety of tools and out-reach services to help physicians and their colleagues meet the challenge of keeping practices current in an environment of continually emerging evidence.

## **To Provide Feedback**

The TOP Program encourages your feedback. If you need further information or if you have difficulty applying this guideline, please contact::

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